

**WHAT IS CLAIMED IS:**

1. A protocol embodying system in the GGSN including a GPRS (general packet radio service) network which includes protocols of first and second network layers, and respective protocols of a transfer layer and the GPRS tunneling, and converts user data into IP packets and IP packets into user data; and a PDN (public data network) which is connected to the GPRS network, and uses the protocols of the first and second layers to transmit the IP packets to the outside or the GPRS network, comprising

an IP layer, provided between the GPRS network and the PDN, for performing routing between the two networks, and performing routing between the protocols of the first and second network layers and the transfer layer protocol on the GPRS network, and

a virtual driver provided on the lower part of the IP layer, connected to the protocol of the GPRS tunneling provided to the upper part of the IP layer on the GPRS network, and operable as the lower interface of the IP layer.

2. The protocol embodying system of claim 1, wherein the virtual driver is connected to the IP layer so that the IP packets are output to the PDN through the protocols of the first and second layers of the PDN when the data transmitted from the GPRS network are passed through the protocols of the first and second network layers and converted into the IP packets through the IP layer, the transfer layer, and the GPRS tunneling.

3. The protocol embodying system of claim 1, wherein the virtual driver is connected to the IP layer so that the IP packets are output to the GPRS network through the tunneling protocol of the GPRS network, the transfer protocol, the IP layer, and the protocols of the first and second layers when the IP packets transmitted from the PDN are transmitted to  
5 the IP layer through the protocols of the first and second layers.

4. The protocol embodying system of claim 1, wherein the virtual driver performs a reporting process with the IP in advance in order to process the dynamic and static addresses of the mobile stations belonging to the GGSN during the process of transmitting the IP packets  
10 provided from the PDN to the GPRS network.

5. A protocol embodying method in the GGSN, comprising:

(a) when receiving a packet at a GGSN from a GPRS network, transmitting a message tunneled through protocols of first and second  
15 layers of the GPRS network to an IP, allowing tunneling of the tunneled message to be canceled at a GPRS tunneling protocol through a protocol of a transfer layer according to routing of the IP, and generating an IP packet;

(b) transmitting the IP packet generated in (a) to the IP through a  
20 virtual driver, and allowing the IP to transmit the IP packet to a corresponding node on the PDN; and

(c) allowing the PDN which has received the IP packet in (b) to output the IP packet to the outside through protocols of the first and

second layers.

6. A protocol embodying method in the GGSN, comprising:

(a) when receiving an IP packet at a GGSN from a PDN (public data network), transmitting the IP packet to an IP through protocols of first and second layers;

(b) transmitting the IP packet transmitted to the IP in (a) to a virtual driver, and allowing the virtual driver to transmit the IP packet to a GPRS tunneling protocol of the GPRS network; and

(c) converting the IP packet transmitted to the GPRS tunneling protocol in (b) into a tunneled message, and outputting the tunneled message to the GPRS network through a transfer layer protocol, the IP, and protocols of the first and second layers.

7. The protocol embodying method of claim 6, wherein the step of allowing the virtual driver to transmit the IP packet to the IP in (b) comprises performing a reporting process with the IP in advance so that the virtual driver may process dynamic and static addresses of mobile stations belonging to the GGSN.